

Commissioner for Patents  
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Art Unit: 3632  
Examiner: Sterling  
Docket No. RPS9 2003 0080 US1

### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

### **Listing of Claims:**

1 (canceled). A mechanical assembly, comprising:

an arm connected to and free to rotate about a pivot point;

a counterbalance extension link connected to and free to rotate about the pivot point;

a yoke including a first slot in which a pin of the counterbalance extension link resides, wherein the yoke is enabled to translate in a plane responsive to rotation of the counterbalance extension link pin about the pivot point; and

a force generating device connected between the counterbalance extension link pin and a fixed point on the yoke to exert a force on the counterbalance extension link pin, wherein the orientation of the force produced by the force generating device remains constant as the yoke translates responsive to the counterbalance extension link pin rotating about the pivot point.

2 (currently amended). The assembly of claim ~~[1]~~ 3, wherein the counterbalance extension link and the arm are collinear and the orientation of the first slot is parallel to the force of gravity.

3 (currently amended). ~~[The assembly of claim 2.]~~ A mechanical assembly, comprising:

an arm connected to and free to rotate about a pivot point;

a counterbalance extension link connected to and free to rotate about the pivot point;

a yoke including a first slot in which a pin of the counterbalance extension link resides, wherein the yoke is enabled to translate in a plane responsive to rotation of the counterbalance extension link pin about the pivot point; and

a force generating device connected between the counterbalance extension link pin and a fixed point on the yoke to exert a force on the counterbalance extension link pin, wherein the orientation of the force produced by the force generating device remains constant as the yoke translates responsive to the counterbalance extension link pin rotating about the pivot point;

wherein the yoke includes at least a second slot perpendicular to the first slot and a pin attached to a fixed reference through the second slot to guide the motion of the yoke as it translates.

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4 (canceled).

5 (canceled).

6 (currently amended). The assembly of claim {1} 3, wherein the force generating device is a constant force spring.

7 (canceled).

8 (canceled).

9 (currently amended). A balanced mechanical assembly, comprising:

a mechanical arm connected to and free to rotate 360 degrees about a pivot point;

an extension link connected to and free to rotate about the pivot point;

a yoke configured to translate back and forth in a first direction, wherein the yoke position in the first direction tracks the first direction position of a free end of the extension link as the free end rotates about the {link-pin} pivot point; and

a force generating device affixed to the yoke and configured to exert a force on the free end of the extension link, wherein the exerted force generates a movement about the pivot point substantially equal in magnitude and opposite in direction from the movement about the pivot point generated by the arm.

10 (original). The assembly of claim 9, wherein the extension link and the arm are collinear and the orientation of the first direction is perpendicular to the force of gravity.

11 (original). The assembly of claim 10, wherein the yoke includes a first slot perpendicular to the first direction, wherein a link pin attached to the free end of the extension link engages the first slot and moves within the first slot as the link pin rotates about the pivot point.

12 (canceled).

13 (canceled).

14 (original). The assembly of claim 9, wherein the force exerted by the force generating device is constant and independent of the position of the extension link.

15 (original). The assembly of claim 14, wherein the force generating device is a constant force spring.

16 (canceled).

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17 (canceled).

18 (currently amended). A mechanical assembly, comprising:

a mechanical arm connected to and free to rotate through a 360 degree arc about a pivot point;

a extension link connected to and free to rotate about the pivot point, wherein the angle formed by the mechanical arm and the extension link is fixed;

means for applying a force to a free end of the extension link, wherein the exerted force remains substantially constant in magnitude and direction as the arm and extension link rotate about the pivot point, wherein the applied force generates a movement about the pivot point that is substantially equal in magnitude and opposite in direction to a movement generated by the mechanical arm.

19 (original). The assembly of claim 18, wherein the force application device includes a constant force device connected to a free end of the extension link.

20 (original). The assembly of claim 19, wherein the constant force device is further connected to a point on a yoke configured to translate in a first direction as the extension link rotates, wherein the position in the first direction of the yoke tracks the first direction position of the free end of the extension link.

21 (newly added). The assembly of claim 3, wherein the pivot point comprises a pin extending through a hole in the fixed reference and wherein the counterbalance extension link rotates about the pin on a first side the fixed reference and the arm rotates about the pivot point on a second side of the fixed reference.